

TITLE: ROLLER SKATE WITH A MICRO ADJUSTMENT DEVICE

Field of the Invention

This invention relates to a roller skate with a micro adjustment device adapted to the traditional four-wheels roller skate, inline skate, tri-wheels roller skate, and ice
5 skate.

Background of the Invention

There are various models of roller skates on the market. Each skate has a size to fit a user with the size of feet. However, when the user grows up, the size will not fit anymore, and the skate has to be replaced, which is not cost effectiveness. An
10 adjustable skater is disclosed later on, which comprises a front and a rear sections, by adjusting one of the sections, the skater's size may be changed to fit users with different sizes of feet. These skaters may have a heavy weight, which will hurt the user's ankles. Further the adjustment is a large scale, therefore, in many times the adjusting size is either slightly large or small.

15 In view of these and many other shortcomings, the inventor has invented the present invention to do a micro adjustment.

Summary of the Invention

It is the primary object of the present invention to provide a roller skate with a micro adjustment device, which uses a micro adjustment to reach the most desirable
20 size for a user, so as to minimize the burden from wearing the skate and to prevent any possible damages.

It is another object of the present invention to provide a roller skate with a micro adjustment device, which uses few components, therefore has less weight and burden to a user.

It is a further object of the present invention to provide a roller skate with a micro adjustment, which is inexpensive in manufacture.

Brief Description of the Drawings

FIG. 1 is an exploded view of the present invention;

5 FIG. 2 is an exploded view depicting a quick release device of the present invention;

FIG. 2A is a second embodiment of the quick release device of the present invention;

FIG. 3 is a side view of the present invention;

FIG. 4 is another side view similar to FIG. 3, with partial sectioned, and

FIG. 5 is an enlarged view of the micro adjustment device of the present invention.

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Detailed Description of the Preferred Embodiment

A roller skate with a micro adjustment device of the present invention is generally composed of a wheel frame 1, a quarter 2, and a vamp 3.

The wheel frame 1 is identical to a conventional skate, which comprises a block 17 on the front top end with two rails 171 along two sides thereof, a pair of side boards extending from two sides from the top end downwardly and secured with wheels 16, respectively. The outer sides of the side boards are formed with a first chain 12 which comprises a slot 11 thereat. The top end of the wheel frame 1 comprises a second chain 13. Two front locating holes 14 and a rear locating hole 15 are formed on the top end of the wheel frame 1, respectively.

The quarter 2 is secured to the top rear section of the wheel frame 1, having a pair of front holes 21 and a rear hole 22 at the bottom thereof.

The vamp 3 is secured on the top front section of the wheel frame 1, with two sides extending downward to form a pair of side boards 31, respectively, and a third chain 33 on the inner wall of the side boards 33 corresponding to the first chain 12 and having a guiding hole 32 thereat corresponding to the slot 11. The vamp 3 has a sliding slot 38 at the front bottom end. The sliding slot 38 comprises a pair of ridges 381 at two sides corresponding to the rails 171 of the block 17. A quick release device 34 is adapted to connect the vamp 3 and the quarter 2. The quick release device 34, as shown in FIG. 2, is secured to a disc 361 of a shaft 36 by a pin 35. The shaft 36 comprises a gear 37 at the center portion adapted to mesh with the second chain 13. The shaft 36 has a pair of lugs 362 at the center so as to clamp into a trough 371 within the gear 37 and extending through the gear 37. The exposed end of the shaft 36 is secured by a pin C2 and a sleeve C thereat.

A second embodiment of the quick release device 34A, as shown in FIG. 2A, is secured to a disc 361A of a shaft 36A by a pin 35A. The shaft 36A comprises a gear

37A at the center portion adapted to mesh with the second chain 13. The shaft 36A is a round stick with a cut-off section 363 at the center so as to clamp into a trough 371A within the gear 37A and extending through the gear 37A. The exposed end of the shaft 36A is secured by the pin C2 and a sleeve D thereat.

5 To assemble the present invention, as shown in FIGS. 3 and 4, a bolt A sleeved with a washer A1 is inserted through the rear hole 22 of the quarter 2 and the rear locating hole 15 of the wheel frame 1 and secured by a nut A2 from the other side thereof. Two rivets B are inserted through the front holes 21 of the quarter 2, the sliding slot 38 of the vamp 3, and the front locating holes 14 of the wheel frame 1 and
10 riveted with washers B1 from the other end thereof. The sliding slot 38 has the ridges 381 at respective sides corresponding to the rails 171 of the block 17. This brings the first chain 12 of the wheel frame 1 and the third chain 33 of the vamp 3 to mesh together, as shown in FIG. 5. The gear 37 is located between the two side boards of the wheel frame 1. The shaft 36 of the quick release device 34 is inserted through a
15 washer C1, the guiding hole 32 of the vamp 3 and the slot 11 of the wheel frame 1, with the lugs 362 inserted in the trough 371 of the gear 37 in a secure manner, and is then coupled with the sleeve C and the pin C2, preventing from loosening or dismantling from the guiding hole 32 of the vamp 3 and the slot 11 of the wheel frame 1, and urging the gear 37 of the shaft 36 to mesh with the second chain 13 of the wheel
20 frame 1. Thus the wheel frame 1, the quarter 2, and the vamp 3 are secured together.

When in use, as shown in FIG. 5, the quick release device 34 is loosened to release the meshing status of the first chain 12 of the wheel frame 1 from the third chain 33 of the vamp 3. Thus the vamp 3 is able to move with respect to the wheel frame 1. By spinning the shaft 36 of the quick release device 34, the shaft 36 links the gear 37 on
25 the lugs 362 to spin. Because the gear 37 meshes with the second chain 13, the gear 37 is also linked to slide along the second chain 13 simultaneously. This allows the shaft 36 is linked to slide within the slot 11 of the wheel frame 1 while the ridges 381 of the sliding slot 38 of the vamp 3 slides along the rails 171 of the block 17. The

vamp 3 is allowed to slide freely. When the vamp 3 reaches to a prompt distance, as shown in FIG. 5, the quick release device 34 is fastened to force the third chain 33 of the vamp 3 and the first chain 12 of the wheel framer 1 in a tight status to prevent from relative movement. Due to the sizes of the teeth distance of the first chain 12, the
5 third chain 33 and the gear 37 are relative close. The spinning requires little adjustment and a micro adjustment can reach to different size, precisely.